

We claim:

5 1. The use of an ionic liquid as heat transfer medium for the indirect introduction or removal of heat into or from a reactor.

10 2. The use as claimed in claim 1, wherein the ionic liquid has a melting point below 150°C, preferably below 80°C, particularly preferably below 25°C.

15 3. The use as claimed in claim 1, wherein the ionic liquid used as heat transfer medium has an operating temperature in the range from +60°C to 360°C, preferably from 260 to 360°C.

20 4. The use as claimed in any of claims 1 to 3, wherein the reactor is a shell-and-tube reactor.

25 5. The use as claimed in any of claims 1 to 3, wherein the reactor is equipped with heat-exchange plates through which the ionic liquid flows as heat transfer medium.

30 6. The use as claimed in any of claims 1 to 5, wherein an ionic liquid containing a sulfate, phosphate, borate or silicate anion is used.

7. The use as claimed in claim 6, wherein the ionic liquid contains a monovalent metal cation, in particular an alkali metal cation, and a further cation, in particular an imidazolium cation.

8. The use as claimed in any of claims 1 to 5, wherein an ionic liquid containing an imidazolium cation, pyridinium cation or phosphonium cation as cation is used.

9. The use as claimed in any of claims 1 to 7 for removing the heat of reaction of an exothermic reaction, in particular a partial oxidation, particularly preferably for the preparation of acrolein, acrylic acid, phthalic anhydride, maleic anhydride, or for the preparation of chlorine by oxidation of hydrogen chloride.

10. The use as claimed in any of claims 1 to 9, wherein the ionic liquid is used as a replacement for the high-temperature salt melt, a heat transfer oil, monochlorobenzene or a heat transfer medium used for evaporative cooling or for the condensation of vapor.